Troubleshooting

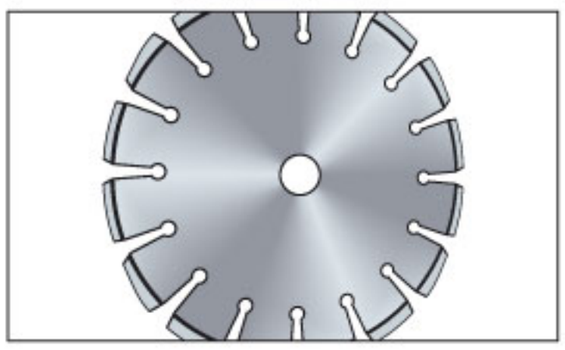
Wall Sawing and Floor Sawing

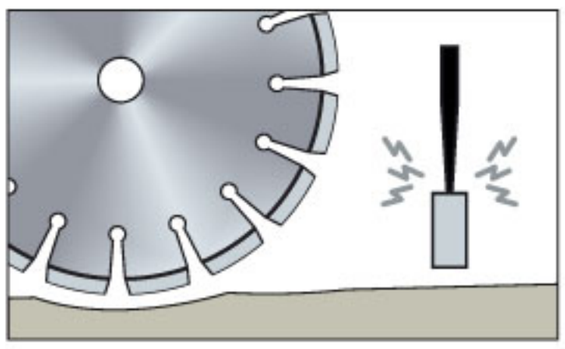
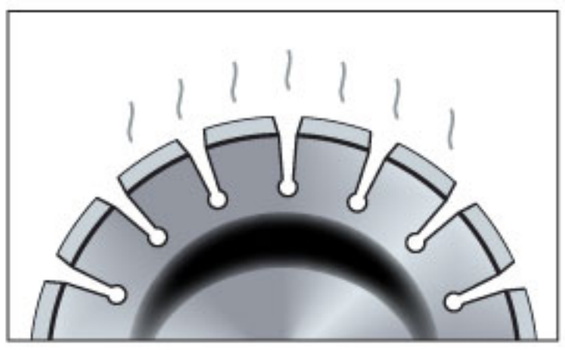
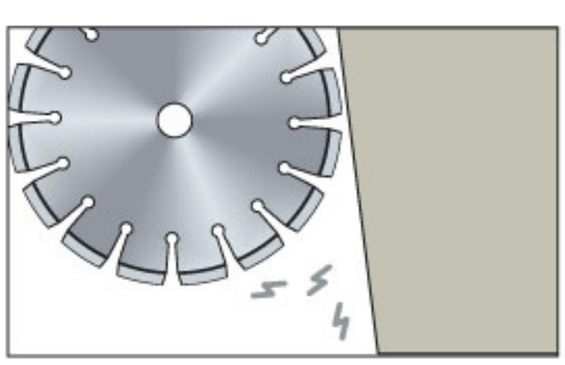
Good product selection, regular observation and maintenance are the keys to obtaining maximum life from wall and floor saw blades. The following notes should assist you to obtain the maximum life expectancy from blades and help keep within Health and Safety guidelines at all times.

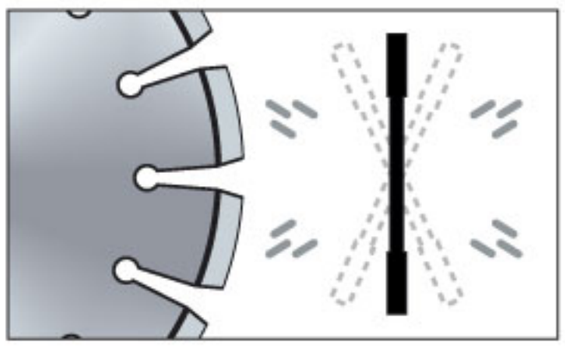
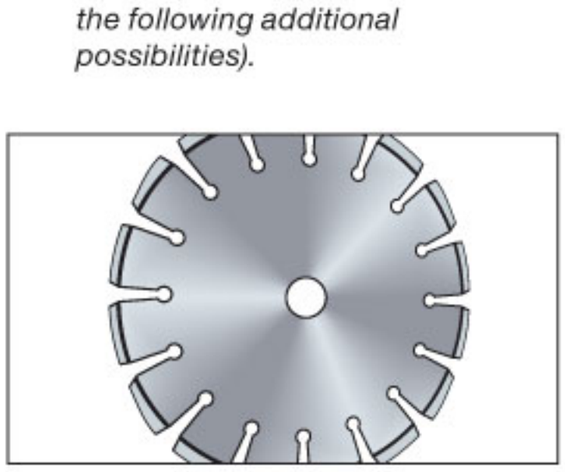
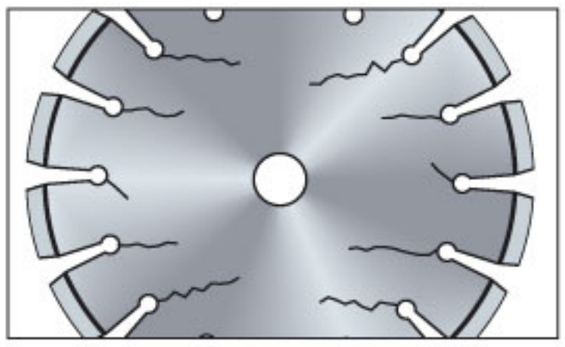
Blades should be checked regularly for cracks, discolouration and signs of overheating or undercutting. All these faults could lead to segment loss, after which it is unsafe to use the blade further.

As most problems occur as a result of incorrect blade choice, inappropriate usage and faults with the equipment (e.g.motor, machine stability and water/coolant supply), particular attention should be paid to these aspects and to the manufacturer's instructions before sawing commences. When problems occur during usage, the following aspects should be checked as the most obvious causes and solutions, and the machine stopped to avoid further damage. If these immediate 'first aid' measures do not solve the problem, please call the Diaquip Technical Services Dept. for further advice. Do not use the machine again until this is obtained.

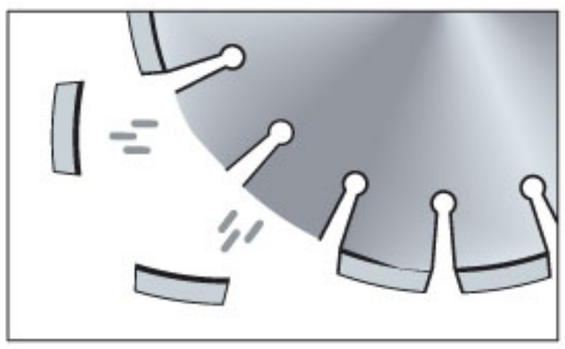
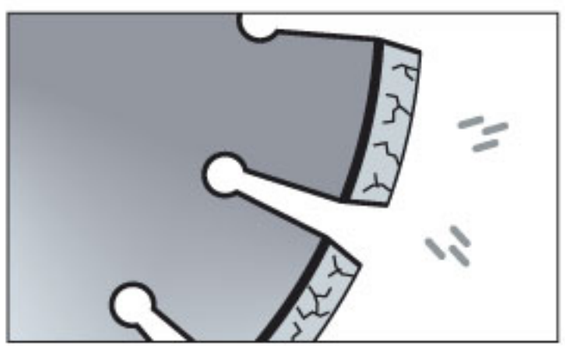
Whole blade performance

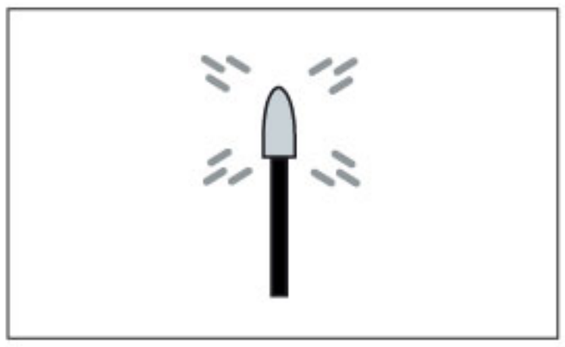
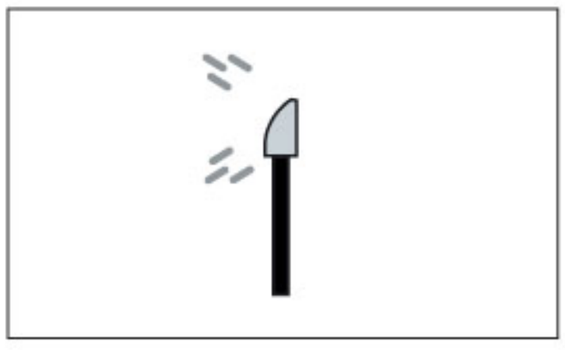
PROBLEMS ENCOUNTERED	POSSIBLE CAUSES	CORRECTIVE MEASURES
A. LOSS OF TENSION / BLADE DISTORTION 	1. Saw is not properly aligned.	1. Realign.
	2. Blade/bond is too hard for the material being cut leading to excessive stress.	2. Select correct blade.
	3. Attempt is being made not to cut in a straight line.	3. Ensure cutting is straight and blade at 180° to material being cut.
	4. Material has slipped and caused blade to buckle.	4. Ensure that material to be cut is firm and stable.
	5. Fixing flanges are not of correct size, balanced or aligned.	5. Ensure that flanges are of correct size, uniformly fitted and adequately (but not excessively) tightened.
	6. Blade not properly fitted to spindle.	6. Ensure blade is fitted to spindle without excessive play or tightness.
	7. Excessive or uneven wear at blade circumference puts pressure on the core.	7. Check wear patterns regularly and replace/repair as necessary.
	8. Steel core overheating or not sufficiently water-cooled.	8. Check cooling system and water distribution.
	9. Excessive speed/rpm being attempted.	9. Reduce speed.
	10. Pre-cut blade has not been used to prepare for deeper cuts.	10. Use pre-cut blade whenever possible or appropriate.
	11. Blade damaged or dropped during transport or handling.	11. Check blades carefully before use. Replace/repair as necessary.

PROBLEMS ENCOUNTERED	POSSIBLE CAUSES	CORRECTIVE MEASURES
B. UNDERCUTTING *This describes the situation when the steel cores/centres wear more rapidly than the segments on the circumference. It can lead very rapidly to segment loss.* 	1. Incorrect choice of blade material – bond too soft. 2. Cutting into substrate (may lead to loss of coolant). 3. Rotation direction incorrect. 4. Incorrect water pressure or supply. 5. Very abrasive materials being cut.	1. Select correct blade. 2. Reduce depth of cut to minimum necessary to prevent cutting through abrasive debris (protective segments may be used to protect the blade in extreme cases). 3. Correct direction of rotation. 4. Check cooling system and water distribution. 5. See 2 above.
C. OVERHEATING *This can easily be detected by noting a black or blueish discoloration of the steel core.* 	1. Attempting to cut too fast or too deeply in one pass. 2. Bond too hard – can lead to 'pounding'. 3. Excessive feed pressure. 4. Blade spinning freely on spindle. 5. Shaft worn, grooved or damaged. 6. Water pressure too low, flow insufficient or unevenly distributed. 7. Blade cut too deep – no coolant reaching cutting edge.	1. Do not be too ambitious in depth of cut which is possible at one pass. Multiple shallow cuts may take longer, but will protect the equipment and are quicker in the long run. 2. Select correct blade for material to be cut. 3. Reduce feed pressure. 4. Correct fit of blade to spindle. 5. Replace or repair. 6. Check cooling system and water distribution. 7. Reduce depth of cut. See 1 above
D. BLADE WILL NOT CUT 	1. Bond too hard / blade being used on wrong material, leading to bluntness – blade becomes 'glazed'. 2. Machine power inadequate for task (wrong motor, voltage or belt tightness). 3. Incorrect or altered direction of cut, leading to jamming. 4. Segments missing or badly worn. 5. Segments have become smooth and are not cutting, even though not fully worn. 6. Excessive coolant causing blade to float or aquaplane. 7. Excessive motion or play between the carriage guides. 8. Insufficient feed pressure / rate. 9. Freeback has been reached. 10. Incorrect direction of rotation. 11. Water pressure too low, flow insufficient or unevenly distributed.	1. Select correct blade to achieve the correct bond. Open-up glazed segments by working briefly on very abrasive material. 2. Select correct motor capacity and voltage: check belt tightness. 3. Realign direction / angle of cut. 4. Repair blade and replace segments if possible. Otherwise, replace blade. 5. Open up glazed segments by working briefly on very abrasive material. 6. Reduce flow of coolant. 7. Realign and tighten carriage guides. 8. Increase feed pressure / rate. 9. Blade is worn out, replace blade. 10. Correct direction of rotation. 11. Check cooling system and water distribution.

PROBLEMS ENCOUNTERED	POSSIBLE CAUSES	CORRECTIVE MEASURES
E. WOBBLE / FLUTTER 	1. Flexing due to excessive feed or rotational speed.	1. Reduce speed and monitor performance.
	2. Flanges incorrectly fitted/tightened/ balanced (could also be due to debris being trapped between flange and blade – check for this).	2. Correct flange fittings and remove any debris trapped between flange and blade.
	3. Incorrect mounting of blade on shaft – problem compounded when flanges are tightened.	3. Mount blade correctly. Do not tighten flanges excessvely.
	4. Shaft bearing worn or damaged.	4. Replace or repair.
	5. Blade tension does not match cutting speed.	5. Re-tension blade in balance with cutting speed.
	6. Blade tension lost, leading to flutter and further distortion when speed increased.	6. Recalibrate blade tension.
F. BLADE DISTORTION / RUNNING OUT-OF-ROUND / DAMAGE TO THE ARBOR OR BORE *(Check against the causes listed under e) above, and also consider the following additional possibilities).* 	1. Bond too hard, causing diamonds to become prematurely worn and smooth. This leads to 'pounding' and loss of blade shape.	1. Select correct blade for the material being cut.
	2. Arbor hole does not match shaft diameter or has become worn.	2. Rematch arbor and shaft. Repair or replace arbor if worn.
	3. Drive pin not fitted to rear flange or properly located in its retaining hole.	3. Ensure that all drive pins are correctly located in their mounting holes.
	4. Motor not correctly tuned.	4. Retune machine motor.
	5. Blade spinning on spindle shaft or running loose.	5. Check that blade core fits snugly onto its drive shaft.
	6. Blade spindle grooved or damaged, leading to eccentric running.	6. Replace or repair damaged blade spindle
	7. Inadequate lubrication to spindle bearings (especially when sawing concrete).	7. Improve lubrication to bearings.
G. CRACKING TO THE CORE 	1. Bond too hard.	1. Select correct blade for material to be cut.
	2. Excessive feed pressure or rotational speed.	2. Reduce feed pressure and/or speed.
	3. Core loses tension because of excessive heat load (see C on previous page).	3. Reduce speed and check coolant supply.
	4. Core distorted through incorrect line of cut.	4. Correct line of cut.
	5. Damaged bearing or faulty mounting.	5. Replace or repair bearing / mounting.
	6. Blade twists or jams in cut	6. Remove blade, allow to cool and check coolant/lubrication.

Segment Faults

PROBLEMS ENCOUNTERED	POSSIBLE CAUSES	CORRECTIVE MEASURES
A. SEGMENTS 'GLAZED' – WON'T CUT		
	1. Bond too hard – can lead to pounding and fracture of segments.	1. Select correct blade for material bond.
	2. Blade has 'dulled' and diamonds need to be 'opened up'.	2. Open up glazed segments by working briefly on very abrasive material.
	3. Insufficient feed pressure.	3. Increase feed pressure.
	4. Freeback has been reached.	4. Freeback is not a fault. Select new blade.
	5. Insufficient power to blade.	5. Increase power to blade.
	6. Incorrect direction of rotation.	6. Correct direction of rotation.
	7. Speed of rotation too high.	7. Reduce speed of rotation.
	8. Water pressure insufficient.	8. Increase water pressure.
B. SEGMENT LOSS	1. Line of cut is not straight.	1. Improve straightness of cut.
	2. Bond too hard – can lead to pounding and fracture of segments.	2. Select blade and bond suitable for the material to be cut.
	3. Failure to notice segment cracks.	3. Check appearance of segments regularly and replace/repair when necessary.
	4. Excessive feed pressure.	4. Reduce feed pressure.
	5. Flanges worn / insufficiently or unevenly tightened.	5. Ensure flanges of the correct size, balance and tightness during operation.
	6. Out-of-round wear pattern.	6. Check spindle and core correctly centred.
	7. Material slips during cutting.	7. Ensure material is held rigid during cutting.
	8. Eccentric wear pattern on blade core.	8. Check spindle and core correctly centred. Replace spindle if necessary and/or fit new bearings.
	9. Segment damaged or loosened during transit.	9. Always check blades and segments before usage.
	10. 'Undercutting'.	10. Reduce depth of cut to minimum necessary to prevent contact with abrasive sub-base (protective segments may be used to protect the blade in extreme cases).
C. SEGMENT CRACKS	1. Arbor hole does not match shaft diameter.	1. Ensure snug fit between arbor and shaft. Replace if necessary to ensure this.
	2. Excessive feed pressure.	2. Reduce feed pressure.
	3. Rotation speed too high.	3. Reduce rotation speed.
	4. Worn, grooved or damaged shaft.	4. Replace or repair shaft.
	5. Excessive machine vibration or instability.	5. Ensure stability of machine. Operate at low speed initially and monitor. performance.
	6. Problems with coolant supply.	6. Check cooling system and water distribution.

PROBLEMS ENCOUNTERED	POSSIBLE CAUSES	CORRECTIVE MEASURES
D. EXCESSIVE WEAR 	1. Incorrect match of material and blade – bond too soft.	1. Select correct blade with harder bond.
	2. Excessive feed pressure causing blade to flex.	2. Reduce feed pressure.
	3. Misalignment of blade and machine.	3. Realign blade and machine.
	4. Out-of-round wear pattern.	4. Check spindle and core correctly centred. Replace spindle if necessary and/or fit new bearings.
	5. Rotation speed too low or loose/slipping drive belts.	5. Increase rotation speed. Check and tighten drive belts.
	6. Worn, grooved or damaged shaft.	6. Repair or replace shaft.
	7. Excessive machine vibration or instability.	7. Ensure stability of machine. Operate at low speed initially and monitor performance.
	8. Blade not at 180° to material being cut.	8. Ensure blade cuts directly onto material.
E. UNEVEN SEGMENT WEAR 	1. Excessive feed pressure.	1. Adjust feed pressure.
	2. Flanges not holding blade properly.	2. Ensure flanges of the correct size, balance and tightness during operation.
	3. Misalignment of blade and shaft.	3. Realign blade and shaft.
	4. Worn, grooved or damaged shaft.	4. Repair or replace shaft.
	5. Blade spinning on spindle – drive pin not engaged.	5. Ensure that all drive pins are correctly located in their mounting holes.
	6. Water pressure too low, flow insufficient or unevenly distributed.	6. Check cooling system and water distribution.